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Public Health Assessment for

CHERRY POINT MARINE CORPS AIR STATION
CHERRY POINT, CRAVEN COUNTY, NORTH CAROLINA
CERCLIS NO. NC1170027261
JUNE 28, 1996

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
Agency for Toxic Substances and Disease Registry

PUBLIC HEALTH ASSESSMENT

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Prepared By:

Federal Facilities Assessment Branch
Agency for Toxic Substances and Disease Registry
Divison of Health Assessment and Consultation

THE ATSDR PUBLIC HEALTH ASSESSMENT: A NOTE OF EXPLANATION

This Public Health Assessment was prepared by ATSDR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) section 104 (i)(6) (42 U.S.C. 9604 (i)(6), and in accordance with our implementing regulations 42 C.F.R. Part 90). In preparing this document ATSDR has collected relevant health data, environmental data, and community health concerns from the Environmental Protection Agency (EPA), state and local health and environmental agencies, the community, and potentially responsible parties, where appropriate.

In addition, this document has previously been provided to EPA and the affected states in an initial release, as required by CERCLA section 104 (i)(6)(H) for their information and review. The revised document was released for a 30 day public comment period. Subsequent to the public comment period, ATSDR addressed all public comments and revised or appended the document as appropriate. The public health assessment has now been reissued. This concludes the public health assessment process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

Additional copies of this report are available from:
National Technical Information Service, Springfield, Virginia
(703) 487-4650

FOREWORD

The Agency for Toxic Substances and Disease Registry, ATSDR, is an agency of the U.S. Public Health Service. It was established by Congress in 1980 under the Comprehensive Environmental Response, Compensation, and Liability Act, also known as the *Superfund* law. This law set up a fund to identify and clean up our country's hazardous waste sites. The Environmental Protection Agency, EPA, and the individual states regulate the investigation and clean up of the sites.

Since 1986, ATSDR has been required by law to conduct a public health assessment at each of the sites on the EPA National Priorities List. The aim of these evaluations is to find out if people are being exposed to hazardous substances and, if so, whether that exposure is harmful and should be stopped or reduced. (The legal definition of a health assessment is included on the inside front cover.) If appropriate, ATSDR also conducts public health assessments when petitioned by concerned individuals. Public health assessments are carried out by environmental and health scientists from ATSDR and from the states with which ATSDR has cooperative agreements.

Exposure: As the first step in the evaluation, ATSDR scientists review environmental data to see how much contamination is at a site, where it is, and how people might come into contact with it. Generally, ATSDR does not collect its own environmental sampling data but reviews information provided by EPA, other government agencies, businesses, and the public. When there is not enough environmental information available, the report will indicate what further sampling data is needed.

Health Effects: If the review of the environmental data shows that people have or could come into contact with hazardous substances, ATSDR scientists then evaluate whether or not there will be any harmful effects from these exposures. The report focuses on public health, or the health impact on the community as a whole, rather than on individual risks. Again, ATSDR generally makes use of existing scientific information, which can include the results of medical, toxicologic and epidemiologic studies and the data collected in disease registries. The science of environmental health is still developing, and sometimes scientific information on the health effects of certain substances is not available. When this is so, the report will suggest what further research studies are needed.

Conclusions: The report presents conclusions about the level of health threat, if any, posed by a site and recommends ways to stop or reduce exposure in its public health action plan. ATSDR is primarily an advisory agency, so usually these reports

identify what actions are appropriate to be undertaken by EPA, other responsible parties, or the research or education divisions of ATSDR. However, if there is an urgent health threat, ATSDR can issue a public health advisory warning people of the danger. ATSDR can also authorize health education or pilot studies of health effects, full-scale epidemiology studies, disease registries, surveillance studies or research on specific hazardous substances.

Interactive Process: The health assessment is an interactive process. ATSDR solicits and evaluates information from numerous city, state and federal agencies, the companies responsible for cleaning up the site, and the community. It then shares its conclusions with them. Agencies are asked to respond to an early version of the report to make sure that the data they have provided is accurate and current. When informed of ATSDR's conclusions and recommendations, sometimes the agencies will begin to act on them before the final release of the report.

Community: ATSDR also needs to learn what people in the area know about the site and what concerns they may have about its impact on their health. Consequently, throughout the evaluation process, ATSDR actively gathers information and comments from the people who live or work near a site, including residents of the area, civic leaders, health professionals and community groups. To ensure that the report responds to the community's health concerns, an early version is also distributed to the public for their comments. All the comments received from the public are responded to in the final version of the report.

Comments: If, after reading this report, you have questions or comments, we encourage you to send them to us.

Letters should be addressed as follows:

Attention: Chief, Program Evaluation, Records, and Information Services Branch, Agency for Toxic Substances and Disease Registry, 1600 Clifton Road (E-56), Atlanta, GA 30333.

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SUMMARY

Marine Corps Air Station (MCAS) Cherry Point is an active 11,485 acre installation north of the Town of Havelock in southeastern Craven County, North Carolina. MCAS Cherry Point was added to the U.S. Environmental Protection Agency's National Priorities List (NPL) on December 16, 1994. The station's inclusion on the NPL was largely based on groundwater contamination. ATSDR discussed groundwater contamination, treatment, and usage with MCAS personnel during an August 1995 site visit and determined there is no current public health hazard associated with contaminated groundwater. In addition, we determined that other contaminated areas at the station [i.e., Installation Restoration Program (IRP) sites] do not currently pose a public health hazard because access to the sites is restricted or limited (thus exposure to contamination is not expected), migration of contaminants to areas where exposure might occur is not expected, and/or they have already been cleaned up.

ATSDR identifies ways in which people can be exposed to contamination and determines if that exposure poses a health hazard. ATSDR identified one exposure situation at MCAS - consumption of contaminated fish from the water bodies surrounding the station. After reviewing fish sampling data, we determined that consumption of fish poses no apparent public health hazard. However, in accordance with the shellfish advisory based on bacterial contamination, shellfish (mussels, clams, and oysters) should not be consumed.

BACKGROUND

A. Site Description and History

Marine Corps Air Station (MCAS) Cherry Point is an 11,485 acre installation north of the Town of Havelock in southeastern Craven County, North Carolina. The station is surrounded by water on three sides: Slocum Creek on the west, Hancock Creek on the east, and the Neuse River on the north (see Figure 1). Commissioned in 1942, the mission at MCAS Cherry Point is to maintain and operate support facilities, services, and material of the 2nd Marine Aircraft Wing, or units thereof, and other activities and units as designated by the Commandant of the U.S. Marine Corps, in coordination with the Chief of Naval Operations.[1]

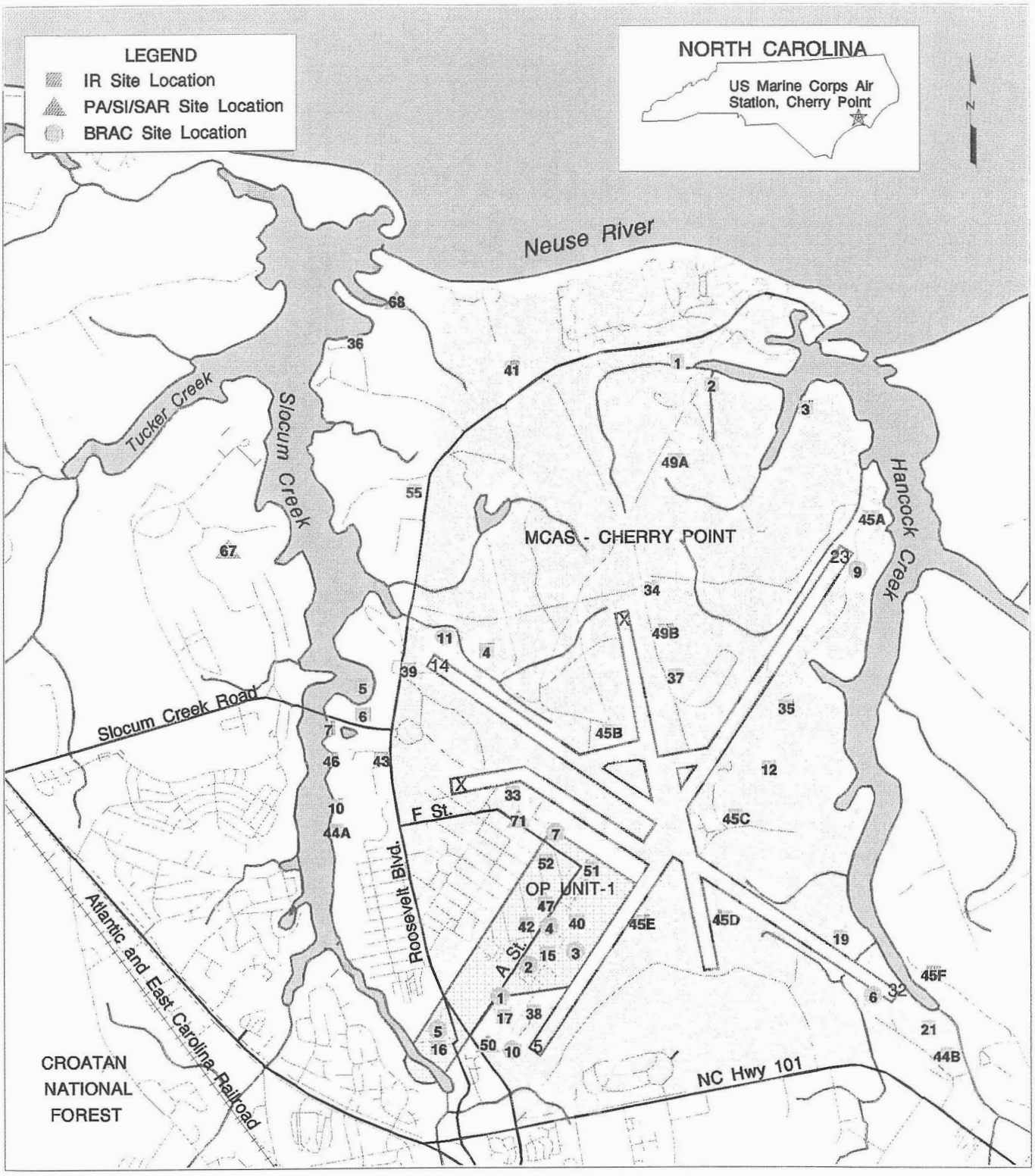
Past waste disposal and storage practices at the station have resulted in environmental contamination at multiple sites. Environmental investigations at MCAS Cherry Point are conducted under the Installation Restoration Program (IRP) and were formally conducted under the Department of Navy Assessment and Control of Installation Pollutants (NACIP) Program.

Currently, 32 IRP sites are being investigated at the station; they are divided into 12 Operable Units (OUs). MCAS personnel have taken numerous actions to clean up and control the areas of contamination on the station and to reduce contaminant migration. A detailed discussion of IRP data and actions are provided in the station's IRP documents maintained at the station library and the Havelock Public Library. A summary of IRP site information is provided in Appendix A.

B. ATSDR Involvement

On December 16, 1994, MCAS Cherry Point was placed on the Environmental Protection Agency's (EPA) National Priorities List (NPL) primarily because of groundwater contamination in the upper aquifers (not used for drinking water). The NPL is a list of hazardous waste sites slated for cleanup. The Agency for Toxic Substances and Disease Registry (ATSDR) is mandated to conduct a public health assessment at each site proposed for or listed on the NPL.

ATSDR identifies ways people have been, are, or could be exposed to contaminants (exposure situations) at a site and determines if those exposures may pose public health hazards. Based on observations made during an August 1995 site tour which included discussions with MCAS, North Carolina Department of Environment, Health and Natural Resources, and EPA personnel (see Appendix B for list of contacts) and a review of environmental data, we determined that environmental contamination at the station does not



LOCATION MAP
MCAS - CHERRY POINT, NC

FIGURE 1

ATSDR GIS Spatial Analysis Activity

pose a public health threat. This report presents our evaluation of the IRP sites and groundwater and fish contamination.

EVALUATION OF CONTAMINATION AND EXPOSURE SITUATIONS

A. IRP Sites - No Public Health Hazard

The 32 IRP sites do not present public health hazards because access to the sites is restricted or limited (thus exposure to contamination is not expected), migration of contaminants to areas where exposure might occur is not expected, and/or they have already been cleaned up. A summary of the IRP sites and ATSDR's evaluation of why they are not a public health hazard is in Appendix A. On-going and planned remediation at the station is designed to prevent any future exposures.

B. Groundwater Contamination - No Public Health Hazard

The major sources of groundwater contamination at the station are in the industrial area [Naval Aviation Depot (OU-1) - See Figure 1]. Contamination has been detected in the upper aquifers which are not used as a drinking water source. The groundwater contamination plumes radiate outward from the industrial area toward the creeks and the Neuse River. Sources of groundwater contamination are highlighted in Appendix A.

The Town of Havelock is upgradient from MCAS Cherry Point, thus its water supply should not be impacted by groundwater contamination from the station. Furthermore, in general, clay and sand layers restrict vertical contamination migration from the upper aquifers to the lower aquifer (Castle Hayne Aquifer) which supplies drinking water for the station and Havelock.[2] The U.S. Geological Survey (USGS) is currently working to identify all areas that may have thin or missing clay and sand layers.

Currently, the contamination plumes are not impacting any drinking water wells. All drinking water meets state regulations and is tested according to EPA's Safe Drinking Water Act. In addition, station personnel plan to close all drinking water wells near the industrial area to ensure that wells are not impacted by plumes in the future.[2] *Since exposure to contaminated groundwater is highly unlikely, there is no public health hazard associated with the contaminated groundwater.*

In 1986, the USGS detected benzene, arsenic, lead, and nickel in two station drinking water wells (wells 16 & 17) in the industrial area.[3] The concentrations were below drinking water standards. In addition, the samples were collected at the wellheads before the water from these wells was blended with 22 other station wells. Thus, the water samples were not

representative of the water people actually consumed. The two wells were immediately taken off line and sealed. Initial USGS studies indicated that the clay and sand layers are thin and discontinuous in this area. Subsequent USGS studies determined that closing the wells restored the natural vertical hydraulic gradient (upward), thus eliminating downward migration of upper aquifer groundwater in the area.[4] A hole in the well casing of well 17 was discovered. Thus, contamination from the upper aquifer likely entered wells 16 and 17 through holes in the well casings.[2]

C. Fish Consumption - No Apparent Public Health Hazard

Fishing takes place in the Neuse River and Slocum and Hancock Creeks. The station may have contributed to river and creek contamination, and thus fish contamination, in the past through surface water runoff and groundwater recharging to surface water.[2] *ATSDR evaluated fish tissue data and determined that no apparent public health hazard exists from consumption of those fish.*

Data Evaluation

ATSDR reviewed *A Biological Evaluation of Metal Contamination in Slocum Creek, North Carolina*, which includes data for metal residues in fish, sediments, and water from Slocum Creek.[5] Fish data were available for 1983, 1985, and 1990. ATSDR compared maximum and average contaminant concentrations detected in edible fish with Food and Drug Administration (FDA) and EPA health guidelines. Nickel was the only contaminant detected which exceeded health guidelines. The FDA guideline of 27 parts per million (ppm) was exceeded in three samples involving two edible species - largemouth bass and summer flounder.

Largemouth bass

Nickel concentrations were detected above the FDA guideline in two of eleven whole largemouth bass samples at maximum concentrations of 75 ppm and 30 ppm (in 1983). However, the average nickel concentration detected in largemouth bass in the same sampling round was 17 ppm, which is below the FDA guideline. Further, eight largemouth bass samples were analyzed in 1990 and all contaminants were below health guidelines.

Even though the FDA guideline for nickel was exceeded in two samples, there is no indication that consumption of largemouth bass from Slocum Creek presents a public health hazard. The FDA guideline is highly protective of public health and relates to a lifetime (70 years) of exposure. This duration of exposure is not expected in the vicinity of the station. Also, there is no subsistence fishing from Slocum Creek.[2] In addition, nickel concentrations that people would be exposed to are expected to be less than those detected during sampling because whole fish where sampled. Whole fish samples include organs and bones where

nickel tends to distribute. People normally eat fillets which do not include the organs and bones. Thus, consumption of largemouth bass poses no apparent public health hazard.

Summer flounder

Nickel was detected at 30 ppm in one of twelve whole summer flounder samples in 1983. However, the average nickel concentration detected in summer flounder was 9 ppm, three times lower than the FDA guideline. No contaminants were detected above health guidelines in subsequent summer flounder samples. Based on the concentrations detected, consumption of summer flounder from Slocum Creek presents no apparent public health hazard.

Shellfish Advisory

Shellfish harvesting (mussels, clams, and oysters) is prohibited in Slocum and Hancock Creeks and in the Neuse River adjacent to MCAS Cherry Point due to bacterial contamination not associated with the station. Thus, shellfish should not be consumed.

Other Water Bodies

Hancock Creek

There are limited fish data available for Hancock Creek. Livers of brown bullheads from Slocum and Hancock Creeks were analyzed for metals and concentrations in fish from both creeks are considered to be low.[5] In addition, livers of brown bullheads from a control creek (Goose Creek) 10 kilometers upstream of the station and on the north shore of the Neuse River had low metal concentrations. Since contamination in brown bullheads from the creeks surrounding the station and the control creek are similar, the station apparently has not adversely impacted brown bullheads in Slocum and Hancock Creeks. In addition, ATSDR did not identify any major groundwater contamination sources discharging to Hancock Creek. Therefore, we do not expect consumption of fish from Hancock Creek to pose a public health hazard.

Neuse River

ATSDR did not evaluate data for fish from the Neuse River. Contamination from the station has not significantly impacted fish in Slocum Creek, therefore we do not expect it to greatly impact fish in the much larger Neuse River.

CONCLUSIONS

1. The current use of the 32 IRP sites do not present public health hazards. If requested, ATSDR will review proposed land use changes for IRP sites and make recommendations on how to prevent exposures should future land use changes pose public health hazards.

2. There is no current exposure to contaminated groundwater. Thus, groundwater poses no public health hazard at MCAS Cherry Point.

3. Consumption of fish from Slocum Creek poses no apparent public health hazard. Also, fish from Hancock Creek should be safe to consume.

4. In accordance with the shellfish advisory based on bacterial contamination, shellfish (mussels, clams, and oysters) should not be consumed.

RECOMMENDATIONS

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, requires ATSDR to perform public health actions needed at hazardous waste sites. To determine if public health actions are needed, ATSDR's Health Activities Recommendation Panel (HARP) has evaluated the data and information in the MCAS Cherry Point Public Health Assessment. No follow up health activities are recommended for MCAS Cherry Point because there is no known exposure at this site.

On-going and planned remediation at the station is designed to prevent future exposures. If land use changes, we recommend that the likelihood of exposure be re-evaluated by the air station, North Carolina Department of Environment, Health and Natural Resources, EPA, or ATSDR.

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REFERENCES

1. Halliburton NUS Corporation. Community Relations Plan for Marine Corps Air Station, Cherry Point, North Carolina. June 1995.

2. ATSDR site visit notes and observations. MCAS Cherry Point. August 14-16, 1995.

3. U.S. Environmental Protection Agency. National Priorities List fact sheet on Cherry Point Marine corps Air Station. August 1994.

4. USGS. Water Resources Investigation Report 89-4200. 1990.

5. Fleming, JW, and Hightower, JE. A Biological Evaluation of Metal Contamination in Slocum Creek, North Carolina. Final Report. May 1995.

IRP SITE SUMMARIES - MCAS CHERRY POINT, NC

Operable Unit No.	Site Number/Name/ Site Description	Waste Disposal History	Contaminated Media	Status of Investigation	ATSDR Evaluation
OU-1	Site 14 - Tank Farm C & Motor Transportation: Parking lot & vehicle maintenance	Oil spills and waste oil applied for dust control	Soils - low levels of oil and grease	Site assessment report submitted to regulators	Fenced with gates. Exposures are unlikely due to limited access.
OU-1	Site 15 - Area and Ditch Behind NADEP 25 acres of ditch between NADEP and Runway 5. Site 40 located in center.	NADEP wastes (Petroleum, Oil, and Lubricant (POL), solvents, cyanides, and metals)) discharged from 1940s to 1975.	Surface water and sediment in Schoolhouse Branch - low levels of metals.	RI and RFI completed; no further action needed. Information indicates that another ditch was outside Building 133-more RI/RFI activities needed in this area	Access to area is highly restricted. Only remediation workers are expected in the area. Thus, exposures are unlikely.
OU-1	Site 16 - Landfill at Sandy Branch 11-acre landfill (now known to be larger).	Miscellaneous landfill wastes, oil, potassium cyanide.	Groundwater upgradient and downgradient of landfill - volatile organics.	RI/RFI ongoing Further investigation needed in landfill and upgradient Remediation of asbestos piles-8/95	Site 16 is gated, but not fenced. Only workers are expected in the area. Exposures are unlikely due to limited access. GW*
OU-1	Site 40 - NADEP Former Drum Storage Area Remediated former drum storage area located adjacent to Site 15.	NADEP wastes. Closed.	None remain.	Closure approved by state	This site is remediated. It is currently a fenced storage area in a highly restricted area. No exposures are expected.
OU-1	Site 42 - Industrial Wastewater Treatment Plant (IWTP) Treats industrial sources such as metal plating, painting, aircraft, and vehicle maintenance. IWTP being upgraded.	Metals, solvents, oils previously accepted F002 and F006. Active.	Groundwater and soil - volatile organics.	RI/RFI ongoing	Only workers are expected to be in the IWTP area. Exposures are unlikely. GW*
OU-1	Site 47 - Industrial Sewer System Services Air Station's industrial area.	Metals, solvents, oils. Active.	Soil and groundwater - volatile organics and metals. Multiple confirmed leaks in lines.	Continued RI/RFI of soil and groundwater planned Repair of leaking lines	No one is exposed to the underground contaminated soils. Leaking lines are being repaired. GW*

GW* These sites have contributed to groundwater contamination of the upper aquifers which are not used for drinking water. Thus, no one is exposed to the contamination.

Operable Unit No.	Site Number/Name/ Site Description	Waste Disposal History	Contaminated Media	Status of Investigation	ATSDR Evaluation
OU-1	Site 51 - Building 137 Plating Shop Plating shop with concrete lined sump.	Metals and cyanide.	Soils and groundwater, believed to be from other sources - volatile organics.	RI/RFI Ongoing Further investigation needed to define sources.	The plating shop was an empty building scheduled for demolition at the time of the ATSDR site visit. No exposures are expected relating to this site. GW*
OU-1	Site 52 - Building 133 Plating Shop and Ditch Plating shop with concrete lined sump.	Metals and cyanide.	Soils and groundwater believed to be from other sources - volatile organics.	RI/RFI Ongoing Further investigation needed to define sources.	The plating shop was an empty building scheduled for demolition at the time of the ATSDR site visit. No exposures are expected relating to this site. GW*
OU-1	Site 71 - Building 3909 Weapons cleaning area.	Spills of petroleum based cleaning products.	Soil - petroleum and solvents.	Continued investigation.	Area is fenced and access is restricted. No exposures are expected relating to this site.
OU-2	Site 10 - Old Sanitary Landfill 40-acre landfill with RCRA sludge impoundment area located in center. (Planes historically used for fire training were recently noticed via aerial photo interpretation.) Site 45 located on top.	POLs, miscellaneous landfill wastes from 1955 to mid-1980s. Sludge impoundment area permitted for metal filings, plating sludges, paint, solvents, oil, and grease. Miscellaneous chemicals.	Soil and groundwater - solvents and metals. Surface water - metals exceed SC/AWQC standards.	RFI for soils ongoing CMS for groundwater partially complete, additional supporting data required IMS for Sludge Impoundment ongoing	This landfill is capped and fenced on 3 sides with a barbed-wire fence. Slocum Creek borders the west side. Only workers have access to the landfill. No exposures are expected. GW*
OU-2	Site 44A - Former Sludge Application Area Retention Time (90-day) sludge.	Sanitary Sewage sludge.	Soil-Metals	Additional RFI data from Site 10 investigations will be used to further evaluate this site.	This site is fenced. Only workers have access to the site. Thus, exposures to soil unlikely.
OU-2	Site 46 - Polishing Ponds No. 1 and No. 2. 2 unlined surface impoundments that serve as aeration basins for sewage wastewater. STP under construction, will no longer need ponds after complete.	Sanitary sewage, previously discharged to Slocum Creek via NPDES permitted outfall. Currently discharges to the Neuse River.	Soil-Solvent and metals.	Closure Plan submitted in 1988. Final approval pending	This site is not easily accessed--it's behind the sewage treatment plant. Only workers should be in the area. Exposures to contaminated soils are unlikely.
	Hobby Shop Building and parking lot for vehicle repair	Unknown	Unknown	RI/RFI ongoing	Area is now covered with asphalt, thus exposures to potentially contaminated soils are not possible.

GW* These sites have contributed to groundwater contamination of the upper aquifers which are not used for drinking water. Thus, no one is exposed to the contamination.

Operable Unit No.	Site Number/Name/ Site Description	Waste Disposal History	Contaminated Media	Status of Investigation	ATSDR Evaluation
OU-3	Site 6 - Fly Ash Ponds 2.5 acres at 2 unlined ponds.	Fly ash and cinders (1940s-1970). Lime/alum sludge (1980-present).	Groundwater - metals.	RI/RFI ongoing Additional RI/RFI data will be collected to include groundwater, soil, surface water, and sediment sampling	Entire site is fenced, thus no exposures are expected. GW*
OU-3	Site 7 - Incinerator 5 acres of incinerator and open burning grounds.	NADEP wastes, POLs and municipal wastes from 1949-1955.	Groundwater and soil - metals. Groundwater - benzene.	RI/RFI ongoing Additional RFI data will be collected to include groundwater, soil, surface water, and sediment sampling	Area is remote; adjacent to the sewage treatment plant. Only workers have access. No exposures are expected. GW*
OU-4	Site 4 - Borrow Pit/Landfill North of Runway 14 10-acre landfill and pit. Site larger than originally thought.	Demolition debris since 1950, possibly other wastes, currently used for construction debris disposal with a solid waste permit.	Groundwater - volatiles and metals.	RI/RFI ongoing Additional RI/RFI data will be collected to include groundwater, soil, surface water, and sediment sampling	This site has a locked gate. Only workers have access. Exposure to groundwater is not possible. GW*
OU-5	Site 1 - Borrow Pit/Landfill 4-acre landfill.	Hazardous material in 1950s, drums, rubble, trash.	Groundwater - Cyanide in 1985 and 1987. None in recent rounds.	RI/RFI ongoing Additional RI/RFI data will be collected to include well installations, groundwater, soil, surface water, and sediment sampling	Site 1 is not fenced, is heavily wooded, and is located along an isolated road used primarily by joggers. Exposure to groundwater is not possible. GW*
OU-5	Site 2 - Borrow Pit/Landfill 4-acre landfill.	Hazardous material in 1950s, drums, rubble, trash.	Groundwater - Cyanide in 1985 and 1987. None in recent rounds.	RI/RFI ongoing Additional RI/RFI data will be collected to include well installations, groundwater, soil, surface water, and sediment sampling	Site 2 is not fenced, is heavily wooded, and is located along an isolated road used primarily by joggers. Exposure to groundwater is not possible. GW*
OU-5	Site 19 - Borrow Pit/Landfill North of Runway 32 9-acre landfill.	Borrow pit used for landfilling from 1949 to 1960.	Groundwater - Low concentrations of organics, not detected in recent rounds.	RI/RFI ongoing Additional RI/RFI data will be collected to include well installations, groundwater, soil, surface water, and sediment sampling	This site is extremely remote. Located along Runway 32, the site is within the flightline security area. People will not be in this area. Exposure to groundwater is not possible. GW*

GW* These sites have contributed to groundwater contamination of the upper aquifers which are not used for drinking water. Thus, no one is exposed to the contamination.

Operable Unit No.	Site Number/Name/ Site Description	Waste Disposal History	Contaminated Media	Status of Investigation	ATSDR Evaluation
OU-6	Site 12 - Crash Crew Training Area & Oil/Water Separator 3 separate areas: 50-foot-diameter crash crew training area A 100-foot-diameter pit A 5-foot-wide, 10-foot-long, and 8-foot-deep oil/water separator.	Flammable liquids.	Groundwater - metals. Soils and sediments - TPH.	RI/RFI ongoing Additional RI/RFI activities to be conducted to include groundwater and soil sampling	This site is extremely remote. Located on the east side of the runway system, the site is within the flightline security area. Only workers will be in the area. Exposures are not expected. GW*
OU-7	Site 55 Third Light Anti-Aircraft Missiles (LAAM) Area Waste Oil Underground Storage Tank (UST). Found not leaking.	Waste oil.	Groundwater - Low levels of volatiles. Soil - TEX in upgradient boring.	RI/RFI ongoing Source investigation to continue in outlying areas	Site 55 is in a restricted area; only workers have access. Contaminated soil has been removed, thus exposures are unlikely. GW*
OU-8	Site 5 - POL Storage Tank 100,000-gallon above-ground tank (Tank 1771) and storage tank.	POL, No. 6 fuel oil. Tank 1771 removed.	Soil - PCBs.	RFI and CMS completed Pre-CMI study for soil Removal presently being conducted	Contaminated soils were removed in March 1995. No exposures are expected.
OU-8	Site 17 - DRMO Storage Area and Drainage Ditch Drainage ditch approximately 1 acre in size.	General storage, including transformers. PCB spills, 1961-1968.	Soil - PCBs.	RFI and CMS completed Pre-CMI study for soil Removal presently being conducted	Contaminated soils were removed in March 1995. No exposures are expected.
OU-9	Site 36 - Headquarters and Headquarters Squadron (H&HS) Former Accumulation Area 10-foot by 10-foot by 3-inch concrete pad.	Spent oil, battery acid, batteries since 1970s. Active.	Soil	RFI completed IM completed Additional confirmation soil and groundwater sampling pending	Currently the site is a non-hazardous waste storage area. Exposures to soil are unlikely.
OU-9	Site 37 - Marine Wing Communications Squadron (MWCS) 28 Accumulation Area 50-foot by 10-foot by 6-inch concrete pad.	Hazardous/nonhazardous wastes, including paint cans, paint sludge, waste oil, solvents, antifreeze, batteries, sorbents since 1970s. Active.	Soil - metals only. No volatiles detected.	RFI completed IM completed Additional confirmation groundwater sampling pending	This less-than-90-day storage area is surrounded by a barbed wire fenced and locked shut. Because of the concrete pad, no exposures to soil are expected.
OU-9	Site 49A and 49B - Oil/Water Separators and Leach Fields. Two oil/water separators and leach fields consisting of a system of subsurface drains discharging through NPDES outfalls.	Clarified water from oil/water separators. All O/W separators discharge through NPDES, IWTP, POTW.	Soil - low levels of metals.	RFI completed IM completed Additional confirmation groundwater sampling pending	Removal actions have been performed, thus exposures to contaminated soils are not likely. Site 49B is fenced.

GW* These sites have contributed to groundwater contamination of the upper aquifers which are not used for drinking water. Thus, no one is exposed to the contamination.

Operable Unit No.	Site Number/Name/ Site Description	Waste Disposal History	Contaminated Media	Status of Investigation	ATSDR Evaluation
OU-10	Site 33 - Marine Aerial Refueler Transport Squadron (VMGR) 252 Accumulation Area 40-foot by 100-foot by 8-inch concrete pad.	Less than 90-day storage area for hydraulic fluid, waste JP-5, leaded gasoline, paint, solvents. Active.	None remain. Maximum residual TPH concentration 55 mg/kg; maximum TEX < action levels.	Remediation complete Regulatory acceptance pending	The site is fenced and is located inside the flightline security area. No contamination remains.
OU-10	Site 34 - Crash Crew Accumulation Area 100-foot by 15-foot by 6-inch concrete pad.	POL and hydraulic fluid. Active.	None remain. Maximum residual TPH concentrations 0.0063 mg/kg; no volatiles detected.	Remediation complete Regulatory acceptance pending	The site is located inside the flightline security area. No contamination remains.
OU-10	Site 35 - Marine Aircraft Group (MAG) 14 Accumulation Area 30-foot by 20-foot and 15-foot by 5-foot concrete pads. Inactive.	Empty hydraulic fluid cans and waste JP-5 in drums.	None remain. Maximum residual TPH concentration 0.0014 mg/kg; volatiles below action levels.	Remediation complete Regulatory acceptance pending	The site is located inside the flightline security area. No contamination remains.
OU-11	Site 3 - Explosive Ordnance Disposal (EOD) Old inactive area with small buffer zone, subsequently moved farther south to provide better buffer. Active, interim status permitted facility.	Detonation of unserviceable ammunition and napalm.	Groundwater - low levels of TNT below action level.	Site active; will be closed under RCRA	Site 3 is extremely remote, in the woods, fenced, and double gated. It also has a safety buffer zone. Only workers with protective equipment have access. Exposures to groundwater are not possible. GW*
OU-11	Site 38 - Defense Reutilization Marketing Office (DRMO) Hazardous Waste Storage Area 1 acre by 6-inch concrete pad. Active, permitted TSD facility.	Hazardous waste stored in drums, including F001, F004, F005, F007, F008, D002.	Soils in ditch are considered Site 17 (PCBs). No other contaminants noted.	Site active; will be closed under RCRA CMI activities at Site 17 will cover ditch	Site 38 is in a restricted area and covered by asphalt. Exposures to contaminated soils are not likely.
OU-11	Site 39 - Facilities Maintenance/Hazardous Waste Storage Area 3 separate roofed, bermed concrete pads in a fenced area approximately 100 feet by 500 feet.	PCB-contaminated transformers, solvents, POL.	Soil - PAHs.	Site active; will be closed under RCRA	Site 39 is surrounded by a fence with a locked gate. The ground is covered with concrete pads, thus no exposures to soil are expected.
OU-11	Site 43 - Sewage Treatment Plant Treats sanitary sewage from the air station and pretreated sewage from the IWTP.	Sanitary sewage, permitted NPDES.	None Known.	Presently active; planned upgrade in 1994	Contamination has not been detected, thus no exposures are expected.

GW* These sites have contributed to groundwater contamination of the upper aquifers which are not used for drinking water. Thus, no one is exposed to the contamination.

Operable Unit No.	Site Number/Name/ Site Description	Waste Disposal History	Contaminated Media	Status of Investigation	ATSDR Evaluation
OU-11	Site 45A to F - Current Sludge Application Area Sludge application (350 permitted acres).	Sanitary Sewage sludge, state water quality permit, active, non-hazardous.	None Known.	Presently active.	These 6 sites are in the secured flightline area, thus access is restricted. No exposures are expected at these permitted sites.
OU-12	Site 41 - Fuel Line Leak Site Leak in underground JP-5 transfer line.	JP-5 transport system leaked 600 gallons.	Soil-TPH and volatiles	Contaminated soil removed Deferred to UST program	The contaminated soils have been removed, thus exposures are unlikely.
OU-13	Site 21 - Borrow Pit/Landfill (South End of Runway 32) 30-acre landfill.	NADEP wastes, ash, and asbestos from 1949 to early 1960s.	Groundwater - metals. Possible upgradient sources, because upgradient and cross-gradient wells affected.	RFI Ongoing Groundwater sampling, surface water sampling, soil sampling	This site is in the fenced flightline security area at the remote end of Runway 32. Access is restricted to workers. GW*
OU-13	Site 44B - Former Sludge Application Area 12 acres on which treated sludge was applied under state non discharge permit. Later designated as RCRA waste by EPA. Retention Time (90-day) sludge.	Sanitary sewage sludge.	Soil-Metals.	Additional RFI data from Site 21. Investigations will be used to further evaluate this site. Closure Plan submitted in 1988	This site is in the fenced flightline security area at the remote end of Runway 32. Access is restricted to workers. Any exposures to soil would be highly infrequent and do not pose a health hazard.
PA/SI Site	Site 50 - Polychlorinated Biphenyls (PCB) Transformer Spill Area PCB transformer leaked oil onto a 50-foot by 20-foot area in the active industrial area.	Transformer (PCB) spill contaminated soil removed.	Soil - low concentrations or DDT isomers and PCBs.	SI report recommended, no further action/investigation.	Contaminated soils have been removed, thus exposures are not expected.

GW* These sites have contributed to groundwater contamination of the upper aquifers which are not used for drinking water. Thus, no one is exposed to the contamination.

APPENDIX B

Persons Met With:

MCAS Cherry Point Personnel:

Renee Henderson, Environmental Affairs Department (EAD)
George Radford, EAD
Rachel Johnson, EAD
Tom Fitzgerald, EAD
Doug Nelson, EAD
Debbie Moorefield, EAD
Bill Rogers, Natural Resources
Elizabeth Holland, Industrial Hygiene, Naval Aviation Depot (NADEP)
Donald Durnil, Safety, NADEP
Captain Jeff Hearn, Public Affairs
Lynn Phillips, Noise Compliance
W.M. DePriest, Facilities Directorate
Gary Kornegay, Facilities Maintenance Department
Lt. David Shuemaker, Environmental Health, Naval Hospital
Jim Woods, Facilities Development Department
Herb Caviness, Housing Department
Sonja Hopkins, Housing Department
Cecil Moore, Fire Department
Rudy Schwanda, Directorate (Air Station Historian)

Other Navy Personnel:

Linda Saksvig, Naval Facilities Engineering Command-Atlantic Division
William H. Etheridge, Navy Environmental Health Center

Contacts:

Gena Townsend, Environmental Protection Agency
Linda Raynor, North Carolina Department of Environment, Health and Natural Resources (NCDEHNR)
George Gilbert, NCDEHNR

APPENDIX C

Comments received on the public comment release

The comments listed here were received by ATSDR in response to the public comment period for the MCAS Cherry Point Public Health Assessment (April 22, 1996). No comments on accuracy of stated facts are included. If a statement was questioned, we verified or corrected it.

Comment: The text needs to mention that the aquifers must be monitored to determine if contaminants are migrating vertically from the contaminated aquifers above. Information regarding the air station's sampling program (sampling frequency, analyses performed and reporting process, etc.) should be presented, and the quality of groundwater samples collected at the wellheads of the supply wells should be monitored to ensure adequate protection of human health and the environment.

Response: *Because there are no exposures to groundwater at this site and future exposures are not expected, we do not deem this information necessary for the document. Further, various IRP documents describe the air station's plans and progress in remedial actions and monitoring plans. Long-term monitoring plans for the aquifers will be described in remedial decision documents. Those IRP documents are available at the Havelock Public Library and the MCAS Library.*

Comment: Several wells in the industrial area are used for non-potable water supply; they are industrial cooling water supply wells. Should these wells become contaminated, would there be a risk associated with their use in any way?

Response: *No. No one is expected to be exposed to the water used for industrial cooling. The water is recirculated in a closed system.*[1]

Comment: If Goose Creek is upstream of the air station, how would these brown bullheads be affected by any contamination originating from the air station?

Response: *The brown bullheads in Goose Creek are not affected by air station contamination and are not expected to be. Goose Creek is a control creek in a non-industrial area (10 kilometers upstream and across the Neuse River) used for comparison to creeks surrounding the air station. Since contamination in brown bullheads from the creeks surrounding the station and the control creek are similar, the station apparently has not adversely impacted brown bullheads in Slocum and Hancock Creeks.*

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1. Facsimile to Vicki Smith, ATSDR, from Renee Henderson, MCAS Cherry Point. June 26, 1996.